

CONSERVATION PRACTICE STANDARD

RINSATE MANAGEMENT

(No.)

CODE 764

DEFINITION

Rinsate Management is the collection, minimization, handling, and application of rinse water (rinsate) generated during the cleaning or rinsing of equipment or containers used to store, transport or apply pesticides.

PURPOSE

The purpose of rinsate management is to reduce or eliminate pollution to surface water, ground water and soil from residues contained in rinse water, and to eliminate creation of potentially Hazardous Waste from mixing of incompatible products.

CONDITIONS WHERE THIS PRACTICE APPLIES

This practice is intended for use in agricultural, forestry, turf management, ornamental or commercial/industrial grounds maintenance applications, where rinse water can be utilized or disposed of by legal application to labeled crops, target pests, or other areas under normal field conditions. It does not apply to rinsate generated during cleaning of equipment or containers used as part of a structural pest control program such as for building or storage structures. This practice does not apply to the design or use of structures such as temporary or permanent mixing and loading pads or storage facilities. It does not cover disposal of materials classified as hazardous waste.

CRITERIA

A. Regulatory Requirements

1. The U.S. Environmental Protection Agency regulates the disposal of pesticide residues under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). In Pennsylvania administration of FIFRA is delegated to the Pennsylvania Department of Agriculture (Bureau of Plant Industry).
2. Specific manufacturer's product label requirements must be followed when handling, applying or disposing of rinse water. Rinse water should be handled with the same precautions as undiluted product.
3. Specific manufacturer's product label requirements must be followed when selecting sites for rinsing and cleaning of equipment and containers, and for application or disposal of rinse water.
4. If rinsate contains residues from Restricted Use Pesticides, the person(s) involved in rinsing operation must have appropriate certification from the Pa. Department of Agriculture to handle and apply these pesticides, or work under the supervision of a certified applicator.
5. Do not combine rinsates from different or incompatible products intended for different crops, target pests or purposes (e.g. corn herbicide rinsate and soybean herbicide rinsate). This may result in a product mixture that cannot legally be used on any crop or target area and may be considered a Hazardous Waste requiring a Uniform Hazardous Waste Manifest for off-site

shipping and treatment or disposal (not covered under this standard).

6. Handling of pesticides, including rinsates, is an activity regulated under the Worker Protection Standards (except for commercial/industrial grounds maintenance workers).
7. All applicable federal, state and local requirements must be followed.

B. General Criteria for this Practice (not legal requirements)

1. Do not clean containers or equipment within 100 feet of environmentally sensitive areas such as wells, streams, lakes or ponds, wetlands, sinkholes, springs, public water supplies, field tiles and inlets unless an approved Agrichemical Handling Facility (Practice Code 596) is used. (This practice does not cover management of an Agrichemical Handling Facility.)
2. Provide a volume of clean water sufficient for triple-rinsing all equipment and containers. The amount needed will vary according to rinsing method used, but in general should be at least 10% of spray tank volume when high-pressure low volume nozzles or spray wands are used. Larger volumes may be needed for low pressure, high volume cleaning procedures. This volume should also be sufficient to dilute the mixture remaining in the sprayer after product application is done, to no more than 10% of its original 18 field strength concentration.
3. The entire inside of the spray mix tank surface must be accessible to rinsing equipment, i.e. it cannot be too large for the rinsing method used or obstructed by baffles or bulkheads.
4. Safeguards must be used to prevent back-siphoning of water, rinsate or spray. Mix into clean water source, whether this is a dedicated clean water tank, cistern, well or other source.
5. Do not repeatedly rinse equipment or containers in the same location unless an Agrichemical Handling Facility is used.

C. Requirements for Field Application or Disposal

1. Follow product label restrictions as the primary criteria to determine when and where rinsate solution can be applied.
2. Spray the rinse water on the target area or crop just treated, or on other crops or areas listed on product label, if allowed by product label restrictions and if application rates and amounts will not be exceeded.

CONSIDERATIONS

A. Complimentary Practices

1. Pest Management (Practice Code 595) describes procedures that can be used to minimize the number of pesticide applications and hence the number and volume of rinsates generated.
2. Agrichemical Handling Facility (Practice Code 596) describes design and operation of permanent mixing and loading facilities.

B. Source reduction

1. Pesticide Tank Mixes
 - a. Use Integrated Pest Management (IPM) principles and practices as described in the standard for Pest Management (Practice Code 595) to reduce the need for chemical pesticide controls and resulting generation of rinsate through cleaning of application equipment.
 - b. Calibrate equipment properly to apply the correct rate and amount of material.
 - c. Know the exact area to be treated. Prepare only enough material to properly treat the target area in order to reduce the volume of leftover mixture to be diluted and disposed.
 - d. Use returnable containers to reduce the need to rinse many small containers.
 - e. Consider making available small amounts of clean water to top off the tank in case of shortages. This reduces the need to slightly over-estimate spray mix to avoid being caught short.

2. Rinsates

- a. Schedule spraying operations to allow use of leftover mixtures on subsequent jobs to minimize the number and volume of rinsates. Group jobs using similar fertilizers and pesticides to reduce the need to rinse between different crops or treatments.
- b. Give preference to using spray mix tanks with a small sump in the bottom. These reduce the volume of spray mix left in the tank after spraying is done, reducing the volume of rinsate water needed to dilute it.
- c. Recycle rinse water whenever possible. When using rinse water to make up water in the next batch, use up to 1 part of rinsate (assuming 10% of field strength) for every 4 parts or more of clean water.

C. Handling and Application

1. Consider rinsate water to be the same as full strength mix when handling and applying. Use proper safety equipment and clothing.
2. Consider whether physical or chemical characteristics of products being used tend to produce sludges or precipitates that can be difficult to clean.
3. Rinsing the outside of equipment in the field with a portable sprayer rinsing system can reduce buildup of residues around buildings. This will require a larger reservoir of clean water.
4. Use high pressure, low volume cleaning systems to reduce the volume of rinsate generated.
5. Fixed rotating rinse nozzles can be mounted inside the spray mix tank to reduce worker contact with pesticides and rinsate and reduce labor associated and with rinsing the inside of the tank.
6. To eliminate chance of back flow of residue or rinsate into wells, use a portable or fixed nurse tank as a clean water source or use a water tank mounted directly on the sprayer or tractor.
7. Avoid rinsate application or disposal on areas that could result in injury to people, non-target plants, animals, beneficial insects and other organisms. If possible, avoid practices that may be perceived by others as being unsafe or inconsiderate.

PLANS AND SPECIFICATIONS

1. Plans and specifications are to be prepared for specific operations based on this standard.
2. General Specifications
 - a. Identify locations of environmentally sensitive areas, using a map or other suitable means understandable to the person(s) implementing the practice.
 - b. Determine and document the minimum volume of clean water needed to meet objectives, including consideration of needs to clean inside and outside of equipment and empty product containers, emergency clean water supply, and additional water for spraying.
 - c. Document source(s) of clean water available for rinsing procedure(s) to be used to prevent their contamination.
 - d. Determine and document procedures to be used to clean inside of application equipment or containers (fixed rotating nozzles, spray wand, other).
3. Follow other procedures as required by federal, state or local law or by product label requirements, including any record-keeping requirements for the specific products being used.

OPERATION AND MAINTENANCE

1. Follow specific Worker Protection Standards (specify legal requirements).
2. Wear protective clothing as required by pesticide label directions when cleaning equipment and rinsing containers:
 - a. Long pants and sleeves
 - b. Chemical resistant shoes, apron, gloves or other suit
 - c. Chemical resistant eye and face shields
 - d. Respirator
3. Clearly mark containers used for clean water. Do not add cleaning agents to tanks marked as clean water or that are used as emergency wash water sources.
4. Routinely inspect critical components of this practice, especially those that protect ground or surface water, that protect clean water supplies used to rinse equipment, or that contain products or rinsate.
5. Protect plumbing and tanks from ice damage and minimize the accumulation of dirt, leaves, etc. in and on equipment.
6. Provide a clear workspace around all facilities (at least 3 feet).
7. Practice good and general cleanliness to reduce spills.
8. Contain and clean up spills as quickly as possible and contact appropriate emergency and regulatory agency.
9. Wash or dispose of contaminated clothing and protective gear procedures after rinsing operations, using procedures approved by Pa. Dept. of Agriculture or Penn State University (See Reference C.3).

REFERENCES

A. Agencies and Organizations to Contact

1. Pennsylvania Department of Agriculture, Bureau of Plant Industry, 2301 North Cameron Street, Harrisburg PA 17110, (717) 787-4843;
<http://www.pda.state.pa.us>
(Regulatory compliance information)
2. Pesticide Education Office, Penn State (814) 863-0263;
<http://www.cas.psu.edu/docs/casdept/pested/index.html>
(Technical and educational information about pesticides and pesticide handling and management)

B. Environmental Resources Protection

1. The Pennsylvania Soil and Water Conservation Technical Guide (Section. IV) USDA-Natural Resources Conservation Service, Harrisburg, PA (717) 237-2200 (Standards for complimentary practices, other environmental protection considerations)
2. Agrichemical Fact Sheet 5, How to Handle Chemical Spills, Pennsylvania State University, College of Agricultural Sciences (814) 865-6713;
<http://www.cas.psu.edu/docs/casdept/pested/fact5.html>
3. Agrichemical Fact Sheet #8, Fate of Pesticides in the Environment (1994), Pennsylvania State University, College of Agricultural Sciences (814) 865-6713;
<http://www.cas.psu.edu/docs/casdept/pested/fact8.html>
4. Pennsylvania Farm Evaluation System Farm*A*Syst (1997), Pennsylvania State University, College of Agricultural Sciences (814) 865-6713.

5. Groundwater and Agriculture in Pennsylvania, Penn State University College of Agricultural Sciences, (814) 865-6713.
6. Persistence of Herbicides in the Soil, (1993) Agronomy Facts 36, Penn State University College of Agricultural Sciences (814) 865-6713.
7. Forest Buffer Toolkit,
<http://www.dep.state.pa.us/dep/deputate/watermgmt/WC/subjects/StreamReLeaf.htm>
8. Chesapeake Bay Riparian Handbook,
<http://www.chesapeakebay.net/pubs/subcommittee/nsc/forest/riphbk.pdf>

C. Health & Personal Safety

1. Agrichemical Fact Sheet 1, Respiratory Protective Devices for Pesticides, Pennsylvania State University, College of Agricultural Sciences, (814) 865-6713;
<http://www.cas.psu.edu/docs/casdept/pested/fact1.html>
2. Agrichemical Fact Sheet 12, EPA Worker Protection Standards for

Agricultural Pesticides (1996), Pennsylvania State University, College of Agricultural Sciences (814) 865-6713;
<http://www.cas.psu.edu/docs/casdept/pested/fact12.html>

3. Pesticide Education Manual (1996), Pennsylvania State University, College of Agricultural Sciences (814) 865-6713; (A guide to safe use and handling; has information on environmental protection and personal safety, avoiding contamination, cleanup procedures, etc.)

D. Rinse System Design and Operation

1. Agrichemical Fact Sheet 9, Options for in-field pesticide sprayer rinsing and clean water utilization (1994), Scott A. Harrison, Pennsylvania State University, College of Agricultural Sciences (814) 865-6713;
<http://www.cas.psu.edu/docs/casdept/pested/fact9.html>
(Design of sprayer rinse systems.)
2. Sprayer Cleaning (B-72), Donald R. Daum, Pennsylvania State University, College of Agricultural Sciences (814) 865-6713;
<http://server.age.psu.edu/dept/extension/Factsheets/b/>